



## THE IMPACT OF SELF-CARE MANAGEMENT ON INTERDIALYTIC WEIGHT GAIN AMONG CHRONIC KIDNEY DISEASE PATIENTS UNDERGOING HEMODIALYSIS

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| ABSTRACT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Keywords                                                                                                          |
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| <p>Patients with Chronic Kidney Disease (CKD) undergoing hemodialysis therapy frequently experience complications. A prevalent issue among these patients is Interdialytic Weight Gain (IDWG). Preliminary studies indicate a high incidence of IDWG among CKD patients undergoing hemodialysis at RSUD Syamrabu Bangkalan. This study aims to analyze the relationship between self-care management and Interdialytic Weight Gain in CKD patients undergoing hemodialysis. This study employed an analytical correlation design with a cross-sectional approach. The independent variable was self-care management, while the dependent variable was IDWG. The study population consisted of 106 CKD patients undergoing hemodialysis at RSUD Syamrabu Bangkalan, with a sample size of 83 respondents selected through purposive sampling. Data were collected using a self-care management questionnaire and IDWG observation sheets. Statistical analysis was performed using the Spearman Rank correlation test with a significance level of <math>\alpha = 0.05</math>. The Spearman Rank test results for self-care management and IDWG yielded a p-value of 0.001 (<math>\alpha &lt; 0.05</math>) and a correlation coefficient (r) of (-0.369). There is a significant relationship between self-care management and Interdialytic Weight Gain. The correlation value indicates a weak (low) relationship between the two variables. Higher proficiency in self-care management enhances an individual's knowledge level and facilitates better control over weight gain or IDWG. Future researchers are encouraged to investigate other variables not yet explored, such as quality of life, knowledge levels, and family support, to further enrich data regarding interdialytic weight gain.</p> | <p><b><i>Chronic Kidney Disease, Hemodialysis, Self-Care Management, Interdialytic Weight Gain (IDWG)</i></b></p> |

## INTRODUCTION

Chronic Kidney Failure (CKD) is a progressive and irreversible disorder of kidney function, where the body is unable to maintain metabolism, fails to maintain fluid and electrolyte balance which results in an increase in urea. In patients with chronic kidney failure, it has the characteristics of being persistent, incurable and requiring treatment such as kidney transplantation, peritoneal dialysis, outpatient and hemodialysis for a long period of time (Zahra Nasution et al., 2025). Hemodialysis is a way to process the excretion of fluids and metabolic remnants in the body when the kidneys are unable to perform these processes properly (Rosner et al., 2022). An indicator of the success of clients undergoing hemodialysis in managing fluid intake is controlling weight gain. GKG clients in undergoing hemodialysis therapy often experience problems and complications. A problem that often occurs in clients undergoing hemodialysis is weight gain or Interdialytic Weight Gain (IDWG) (Georgianos & Agarwal, 2024).

Interdialytic Weight Gain (IDWG) is an increase in fluid volume manifested by an increase in body weight as an indicator to determine the amount of fluid that enters during the interdialytic period and the patient's adherence to fluid regulation in patients receiving hemodialysis therapy (Bossola et al., 2025). IDWG is manifested by weight gain as an indicator to determine the amount of fluid regulation intake during the interdialysis period and the patient's self-management compliance with fluid regulation in patients receiving hemodialysis therapy (Jalalzadeh et al., 2021). Reports of the prevalence of increased Interdialytic Weight Gain (IDWG) in several countries have increased, namely around 9.7% - 49.5% in the United States and 9.8% - 70% in Europe. Increase in Interdialytic Weight Gain (IDWG) globally there has been no report on the prevalence of IDWG in Indonesia, but the majority of respondents experienced weight gain of more than 5% which is 52.1% and those who do not have more than 5% account for 47.1%. The prevalence of IDWGs who did not diet was 66.7% and had IDWG of more than 6% of

70% of dry body weight. The increase in IDWG in East Java was found in hemodialysis patients at the Hemodialysis Unit of Haji Hospital Surabaya. The total number of GKG clients who underwent routine hemodialysis 2 times a week was 100 patients or 32%. Meanwhile, as many as 68% of patients have IDWG below 3 kg or still within normal limits (Wayunah; Muhammad Saefulloh, 2022).

Based on the data from the results of a preliminary study that has been conducted by researchers at Syarifah Ambami Rato Ebhu Bangkalan Hospital in the last 3 months, there were 105 GKG patients undergoing hemodialysis in October, 115 patients in November, and 98 patients in December. Based on this data, patients who experienced Interdialytic Weight Gain (IDWG) in the last 3 months with the provisions of lightweight, medium and severe categories. From the results of 10 respondents, 4 patients with the <4% (mild) category, 3 patients with the 4-6% (moderate) category, and 3 with the >6% (severe) category. Based on the data above, it shows that GKG patients who undergo Hemodialysis and experience IDWG at Syarifah Ambami Rato Ebhu Bangkalan Hospital are still high.

One of the factors that affect IDWG is the lack of self-care management or poor self-care management. Such as non-compliance in restricting fluid intake due to thirst, low self-efficacy, long hemodialysis, and stress. So that the client experiences an increase in IDWG's interdialytic weight gain. IDWG values that are too high can cause negative effects on the body, including hypotension, muscle cramps, shortness of breath, nausea and vomiting. Currently, patient self-care management skills have become a concern in the world along with the increasing incidence of chronic diseases in the world. Conditions and increasing medical costs and insufficient number of educators are the reasons why self-care management is important to be improved as an effort to improve the quality of life of patients with chronic diseases, families and communities (Amari et al., 2023).

An increase in Interdialytic Body Weight Gain exceeding 5% of dry body

weight can also lead to a wide variety of complications such as hypertension, intradialysis hypotension, left heart failure, ascites, pleural effusion, congestive heart failure, and can result in death. Weight gain between hemodialysis sessions is recommended to be between 2.5% to 3.5% of dry body weight to prevent the risk of cardiovascular problems. The weight gain between the two hemodialysis sessions that the body can tolerate is 1.0-1.5 kg. An increase in IDWG that exceeds 5% of dry body weight can lead to a wide variety of complications such as hypertension, intradialysis hypotension, congestive heart failure, and can result in death. Kidney failure patients undergoing hemodialysis should limit their fluid intake, because excessive fluid intake can result in weight gain called IDWG (Rocco et al., 2023).

Self-care management interventions are a positive effort by patients to participate in their health care to optimize health, prevent complications, control signs and symptoms, follow treatment and minimize the effects of disease in their lives. Self-care management interventions in hemodialysis patients are shown in the concepts of fluid restriction management, dietary food restrictions, and vascular access treatment. Hemodialysis patients need the ability to self-care. If self-care is lacking, it will affect weight gain. Currently, patient self-care management skills have become a concern in the world along with the increasing incidence of chronic diseases in the world. Conditions and the increase in medical costs and the insufficient number of educators are the reasons why self-care is important to be improved as an effort to improve the quality of life of patients with chronic diseases, families and communities (So'emah et al., 2026).

Therefore, according to the researcher, it is important to equip patients with health education/education through self-care management during the dialysis period. Thus, it is hoped that patients will be able to make decisions to comply with fluid restrictions and cultivate a consistent, optimistic nature and be able to adapt to the

therapy and conditions they are undergoing to prevent the occurrence of IDWG. Based on the above analysis, the purpose of this study is to analyze the relationship between Self Care Management and Interdialytic Weight Gain in hemodialysis patients at Syarifah Ambami Rato Ebhu Bangkalan Hospital.

## METHOD

This research method uses correlation analytics with a cross sectional approach, which is a type of research that emphasizes the measurement or observation time of independent variables and the data of bound variables only once. In this type, independent variables and dependent variables are evaluated simultaneously, so there is no follow-up. Of course, not all research subjects must be observed on the same day or time, but independent variables and dependent variables are only evaluated once (Nursalam, 2017). In this study, we will analyze the relationship between self care management and interdialytic weight gain in hemodialysis patients at Syarifah Ambami Rato Ebu Bangkalan Hospital. The independent variable of Self care management of hemodialysis patients and their dependent VitaminD is Interdialytic weight gain. The population used is patients undergoing Hemodialysis. The sample size was obtained by using the formula of sample size  $n = 83$  respondents. Respondents were determined using a purposive sampling technique also known as judgement sampling which met the inclusion and exclusion criteria. The Inclusion Criteria in this study are; GGK patients who undergo hemodialysis and experience IDWG, GGK patients who undergo hemodialysis and are willing to be respondents and fill out questionnaires, GGK patients who undergo hemodialysis and can stand up to weigh weights, and hemodialysis patients with complications of other diseases with normal

muscle strength in the lower extremities. While the exclusion criteria are; GGK patients undergoing hemodialysis who are uncooperative, GGK patients undergoing hemodialysis who experience acute emergencies with total dependence, GGK patients who undergo hemodialysis and are unable to follow the research process until completion or drop out. The research was conducted in March-April 2024 in the Hemodialysis room of Syarifah Ambami Rato Ebu Bangkalan Hospital. This research instrument was to measure Self Care management using a closed questionnaire consisting of 10 questions. 8 positive questions and 2 negative questions. By covering aspects of Dietary Regulation, Stress Management, Lifestyle and Shunt Treatment/Vascular Access. Respondents only need to choose one answer that best suits them by ticking them. The instrument to measure IDWG (Interdialytic Weight Gain) uses a hospital scale that has been calibrated by calculating the patient's body weight after hemodialysis in the first hemodialysis period (measurement I). In the second hemodialysis period, the patient's weight is weighed again before (pre) HD (measurement II), then the difference between measurement II minus measurement I divided by measurement II is multiplied by 100%. The final results of the research were analyzed with the SPSS Spearman Rank Test.

## RESULTS

**Table 1 Characteristics of Respondents Based on Demographic Data in the Study of the Relationship of Self Care Management with Interdialytic Weight Gain (IDWG) in GGK Patients Undergoing Hemodialysis**

| Description                                        | Frequency | Percentage (%) |
|----------------------------------------------------|-----------|----------------|
| <b>1. Age</b>                                      |           |                |
| – >65 year (Senior)                                | 2         | 2.4            |
| – 56-65 years (Late seniors)                       | 12        | 14.5           |
| – 46-55 years (Early seniors)                      | 47        | 56.6           |
| – 36-45 years (Late adulthood)                     | 17        | 20.5           |
| – 26-35 years (Early adult)                        | 5         | 6              |
| <b>2. Education</b>                                |           |                |
| – Basic education (SD dan SMP)                     | 63        | 75.9           |
| – Secondary education (SMA)                        | 13        | 15.7           |
| – Higher education (diploma, bachelor's, master's) | 7         | 8.4            |
| <b>3. Gender</b>                                   |           |                |
| – Female                                           | 38        | 45.8           |
| – Male                                             | 45        | 54.2           |
| Total                                              | 83        | 100            |

Source: primary data

Based on table 1, it shows that most of the respondents have an age range of 46-55 years (early elderly) as many as 47 (56.6%) of the respondents. Based on the data on education characteristics, it shows that almost all of the respondents have elementary and junior high school education as many as 65 (78.3%) respondents. And based on gender data, half of them are female as many as 42 (50.6%) respondents.

**Table 2 Frequency Distribution Based on Self Care Management in GGK Patients Undergoing Hemodialysis**

| Self Care Management | Frequency | Percentage (%) |
|----------------------|-----------|----------------|
| – Low                | 7         | 8.4            |
| – Medium             | 31        | 37.3           |
| – Height             | 45        | 54.2           |
| Total                | 83        | 100            |

Source: primary data

Based on table 2 above, it shows that most of the respondents are categorized as high Self care management as many as 45 (54.2%) respondents.

**Table 3 Frequency Distribution Based on Interdialytic Weight Gain (IDWG) Levels in GGK Patients Undergoing Hemodialysis**

| Interdialytic Weight Gain | Frequency | Percentage (%) |
|---------------------------|-----------|----------------|
| – Weight                  | 5         | 6              |
| – Medium                  | 34        | 41             |
| – Lightweight             | 44        | 53.8           |
| Total                     | 83        | 100%           |

Source: primary data

Based on table 3 above, it shows that most of the respondents, namely categorized as interdialytic weight gain, light as many as 43 (53.8%) respondents.

**Table 4 Cross-tabulation between Self care management and Interdialytic Weight Gain In GGK patients undergoing hemodialysis**

| Self Care Management | Light weight | %         | Medium    | %         | Weight   | %        | Total     | %          |
|----------------------|--------------|-----------|-----------|-----------|----------|----------|-----------|------------|
| Low                  | 1            | 1.2       | 3         | 3.6       | 3        | 3.6      | 7         | 8.4        |
| Medium               | 14           | 16.9      | 16        | 19.3      | 1        | 1.2      | 31        | 37.7       |
| High                 | 29           | 34.9      | 15        | 18.1      | 1        | 1.2      | 45        | 54.2       |
| <b>Total</b>         | <b>44</b>    | <b>53</b> | <b>34</b> | <b>41</b> | <b>5</b> | <b>6</b> | <b>83</b> | <b>100</b> |

Spearman rank statistical test results

Value  $\alpha$ : 0.05,  $p$  value: 0,004, Table R-values: (- 0.317)

Source: primary data

Based on table 4, it can be explained that patients in the Hemodialysis room of Syarifah Ambami Rato Ebhu Bangkalan Hospital obtained low self-care management scores with high Interdialytic weight gain of 3 (3.6%) respondents. Meanwhile, patients who had a high level of self-care management with light interdialytic weight gain amounted to 29 (34.9%) respondents. From the results of the spearman rank statistical test, a P Value of 0.004 was obtained, meaning that the P Value  $< \alpha$  (0.05) was not realized. So H1 is accepted and H0 is rejected. With a correlation value of (-0.317) which means that the correlation coefficient between the two variables is low, this shows that there is a relationship between Self care management and Interdialytic weight gain in GGK patients

undergoing Hemodialysis at Syarifah Ambami Rato Ebhu Bangkalan Hospital.

## DISCUSSION

### 1. Overview of Self Care Management in GGK Patients Undergoing Hemodialysis

Based on the results of research that has been conducted at Syarifah Ambami Rato Ebhu Bangkalan Hospital from 83 respondents, most of the respondents have high self-care management. This is in line with the research that has been carried out (So'emah et al., 2026) High self-care management in hemodialysis patients includes willingness and adherence to therapy, having the knowledge and ability to care for themselves, making decisions about their treatment, identifying problems, setting goals, and monitoring and managing symptoms. Based on the analysis of the questionnaire that has been filled out by the respondents. Based on the results of the questionnaire analysis, high self-care management was obtained based on shunt care indicators or vascular access. Meanwhile, low self-care management lies in the indicator of diet regulation. This is in line with research that has been conducted by (Karmiyati et al., 2021) based on the adherence to dietary arrangements in patients undergoing hemodialysis at the HD Pharmacy Berkat Pangkal Pinang clinic, namely 18 respondents (69.2%) did not comply with the research that had been conducted by (Jalalzadeh et al., 2021) The average patient knows their vascular access treatment by a percentage result (81%). This is because a person who is unable to have knowledge and ability to take care of himself tends to be indifferent to the problems he is experiencing.

From the results of the distribution of general data frequencies on GGK patients undergoing Hemodialysis at Syarifah Ambami Rato Ebhu Bangkalan Hospital,

there are several factors that affect self-care management, including age and education. Based on previous research, age is the age of an individual from the time of birth to the moment of several years. The older you get, the more mature a person will be in thinking and working. Patients with productive age feel encouraged to recover and have a high life expectancy and also as the backbone of the family. According to the researchers' assumption, when a person is more than 40 years old, the body will experience a decrease in function, so that it will affect a person's ability to undergo self-care management to decrease. This is because, a person over the age of 40 is more susceptible to experiencing physical, social, and emotional and numerical changes in their cognitive and numerical abilities to experience gradual decline. Based on previous research (Faridah et al., 2021) The level of education of the patient also determines whether or not a person understands the knowledge they have acquired. In this case study, the level of education of subjects I and II is the same, namely the last education of junior high school. Where the last level of junior high school education can affect the level of compliance. Patients who have higher education will have broader knowledge and also allow the patient to be able to control himself in overcoming the problems he is facing, have high confidence, experience, and have the right estimate of how to deal with the incident and easily understand what is recommended by the health worker, will be able to reduce anxiety so that it can help the individual in making decisions.

Broadly speaking, education encompasses all life processes, in the form of interactions, individuals with the environment, both formally and informally. Educational processes and activities basically involve behavior. In general, a person with high education is able to

determine what is good and avoid what is bad in his life.

## **2. Overview of Interdialytic Weight Gain in GGK Patients Undergoing Hemodialysis**

Based on the data that has been obtained, the majority of respondents who experienced Interdialytic weight gain half of them fall into the light category. This is in accordance with research conducted by (Lv et al., 2025) The hemodialysis patients should achieve in the range of 2.5% to 3.5%. Efforts to achieve this target can be made by relying on several principles, namely limiting the intake of a high-sodium diet, adjusting the concentration of sodium dialysate according to the needs of each patient, dry weight management, and providing an adequate duration of hemodialysis.

Limiting fluid intake is one of the important roles to prevent excessive IDWG, in addition to monitoring the amount of fluid in the body by weighing body weight regularly and determining good fluid intake helps patients adapt to changes in health status and improve their quality of life. Based on the results of observations by the researcher, it can be concluded that the majority of respondents do not have a safe IDWG value even though the addition of IDWG is still in the light category. This can be caused by the patient's non-compliance in fluid restriction. Non-compliance in fluid intake restrictions is difficult for most patients. From the data from the distribution of general data frequency on GGK patients undergoing Hemodialysis at Syarifah Ambami Rato Ebhu Bangkalan Hospital, there are several factors that affect Interdialytic weight gain, including age, education and gender. Based on previous research (Sawinski et al., 2022). The results of the age characteristics of the respondents were known to be the age characteristics of

patients who experienced kidney failure in the most hemodialysis patients aged 18 – 45 years. After the age of 40, kidney filtration decreases over time. This decline is predicted to be around 1% per year. Respondents who have a low age in the age of 40 – 60 years old, this is very worried that with increasing age, kidney function will decrease. People tend to eat foods that contain protein excessively. For people aged 40 years or older, food absorption function has been greatly reduced and kidney function has also decreased. This is because starting at the age of 40, the kidneys begin to lose some nephrons, which are important filtration processes in the kidneys. The decrease is equal to 10 percent of the normal ability of kidney function. Based on the education data that has been carried out by the researcher, almost all of the 63 (75.9%) respondents have a recent educational history, namely with the range of elementary and junior high schools.

Education is a benchmark part of a person's level of knowledge. Therefore, one of the prevention of an increase in IDWG of patients is also processing dietary settings, fluid restriction and types of foods high in sodium. This is also in line with research (Torabikhah et al., 2023) Knowledge is very close to education, where it is hoped that with higher education, the person will also have a wider range of knowledge. Research conducted (Yasari et al., 2024) said that there was a meaningful relationship between education of 60.4% on dietary and fluid adherence of patients with GSK disease. So that the greater the level of education, the greater the level of understanding of dietary adherence and fluid management of GSK patients. The higher a person's education, the wider the understanding, understanding and knowledge of the increase in interdialytic weight gain (IDWG). So that individuals can easily accept and apply a better quality of life.

Based on gender data that has been conducted by researchers, half of the 45 (54.2%) respondents are male. Age can affect IDWG due to decreased thirst sensation caused by the aging process and the presence of cerebral dysfunction and decreased osmoreceptor sensitivity. This makes fluid intake reduced. So as to reduce the weight gain of intradialysis. This is in line with research (Rocco et al., 2023) 60% of the total body water makes up body weight in men while in women it is only around 50%. In addition, men have a body with a composition that is filled with a lot of muscles, while women are considered to have more fat. Fat itself is a water-free substance so that the percentage of water from a woman's weight becomes less. This has a high impact on IDWG in males than females. In maintaining their health, men have a bad lifestyle such as smoking and drinking alcohol. This will certainly affect the level of fluid restriction so that it will affect the increase in the Interdialytic weight gain (IDWG) rate.

### **3. The Relationship Between Self Care Management and Interdialytic Weight Gain in GSK Patients Undergoing Hemodialysis**

From the results of the spearman rank statistical test, a P Value of 0.004 was obtained, meaning a P Value <  $\alpha$  (0.05). So  $H_1$  is accepted and  $H_0$  is rejected. With a correlation value of (-0.317) which means that the correlation coefficient between the two variables is low, this shows that there is a relationship between Self care management and Interdialytic weight gain in GSK patients undergoing Hemodialysis at Syarifah Ambami Rato Ebhu Bangkalan Hospital. According to the researcher's analysis, GSK patients undergoing Hemodialysis can experience an increase in interdialytic weight gain due to psychological conditions, personal

characteristics, daily lifestyle, and daily activities. Therefore, efforts to minimize the occurrence of Interdialytic weight gain by improving Self care management. This is because GSK patients who undergo Hemodialysis with good self-care management will find it easier to undergo treatment in themselves, their bodies, and their minds so that GSK patients who undergo Hemodialysis will be easier to control interdialytic weight gain (IDWG).

Based on previous research, if a person has good self-care management skills, it will be easier for a person to control the amount of fluid that enters and other dietary arrangements. This is due to factors that affect compliance with liquid restrictions such as available resources, lifestyles and daily activities. In this study, the researcher used application theory with the Orem Selfcare theory approach. Self-care of hemodialysis patients has become a concern in the world due to limitations in fulfilling their self-care and daily activities. In accordance with the theory put forward by Dorothea E Orem which states the importance of meeting the needs of self-care independently so that it can improve the quality of life of patients (Tanaka, 2022). Self-care management in GSK patients undergoing hemodialysis is a positive effort by patients to find and participate in their health care to optimize health, prevent complications, control signs and symptoms, follow treatment and minimize the effects of disease in their lives. Self care management in hemodialysis patients is shown in the concepts of fluid restriction management, dietary restrictions, medication management and vascular access treatment. Fluid restriction measurement using interdialytic body weight (IDWG). Food management in the treatment of Hemodialysis patients is an important aspect of self-care management to maintain nutritional status and electrolyte balance. End Stage Renal Disease patients

undergoing hemodialysis usually consume a large amount of drugs for their various conditions, further vascular access is a survival for hemodialysis patients so their treatment is necessary for a significant decrease in IDWG (Iovino et al., 2024).

The results of previous studies showed that there was a significant relationship between the two variables of self care management and interdialytic weight gain in chronic kidney failure clients undergoing hemodialysis. This shows that the more self-care management is improved, the smaller the increase in interdialytic weight gain in chronic kidney failure clients undergoing hemodialysis. Self-care factor fluid intake determined 3.9% of intradialysis weight gain, while the remaining 96.1 were determined by other factors. Self-efficacy and self-care management factors determined 13.8% of the IDWG while the remaining 86.2% were determined by other factors not included in the study (Crown et al., 2017).

According to researchers, the higher the level of self-care management a person, the lower the rate of interdialytic weight gain (IDWG). High self-care management affects the level of knowledge of chronic kidney failure patients undergoing hemodialysis such as dietary regulation, stress management, lifestyle and shunt care or vascular access. So that this will also control the rate of decrease in Interdialytic weight gain (IDWG).

## CONCLUSIONS and SUGGESTIONS

The conclusion of this study is that there is a significant relationship between self-care management and the level of Interdialytic Weight Gain (IDWG) in patients with Chronic Kidney Failure (CKD) at Syarifah Ambami Rato Ebhu Bangkalan Hospital. This condition is supported by the fact that the majority of respondents already

have high self-care management skills, which is directly proportional to the success of the patient's weight control, where most of the respondents are in the mild IDWG category. The advice that can be given is that health services are expected to maintain and improve education programs and counseling fluid intake on a regular basis to strengthen patients' independence in self-care. For patients, it is expected to maintain discipline in monitoring their independent weight so that IDWG remains controlled in the light category. Meanwhile, for future researchers, it is recommended to explore other variables that have not been researched such as family support factors, knowledge level, or quality of life to enrich findings related to the control of complications in hemodialysis patients.

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